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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,379	01/18/2002	Hiroshi Takekawa	3531.66126	6956

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EXAMINER

WONG, KIN C

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/051,379	Applicant(s) TAKEKAWA ET AL.	
	Examiner K. Wong	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

This is a response to amendment filed on 4/26/04.

In regarding to priority under 35 USC 120: the acknowledgement is in office action (12/18/02). But, no copy of the PCT/JP 99/03897 is being submitted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims (1-7) are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al (6034834) in view Imada et al (6268983).

Regarding claim 1: Yoshikawa et al discloses a head actuator device in a disk drive (see figure 8 of Yoshikawa et al and also the associated descriptions of the drive component for details) for a primary resonant frequency of 100 Hz or higher and the compensation thereof (see col. 2, lines 32-40 and col. 5, lines 24-54 of Yoshikawa et al).

Although Yoshikawa et al disclose a piezoelectric subactuator (or microactuator) to the arm for fine positioning (or correction or compensation) (see col. 10, lines 30-61 of Yoshikawa et al), Yoshikawa et al fail to positively mention the piezoelectric microactuator arm at the front end of the main actuator arm (or the arm of the coarse

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actuator). Imada et al is relied upon for the teachings of the piezoelectric microactuator arm at the front end of the main actuator arm (as depicted in figure 1 and col. 4, lines 51-62 of Imada et al).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the arm assembly of Yoshikawa with the piezoelectric microactuator arm as taught by Imada et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide an improvement of the moving resolution of the head as suggested in col. 5, lines 31-45 of Imada et al.

Regarding claim 2: Yoshikawa et al teaches that wherein the main actuator includes a ball bearing fixed to the base, the ball bearing having a property of a nonlinear spring, the primary resonant frequency being set according to the rigidity of the nonlinear spring (in col. 3, lines 45-59 of Yoshikawa et al).

Regarding claim 3: Yoshikawa et al teaches that wherein the rigidity of the nonlinear spring is increased by increasing a preload in the ball bearing (in col. 3, lines 49-57 of Yoshikawa et al).

Regarding claim 4: the limitations of wherein the rigidity of the nonlinear spring is increased by increasing a ball diameter in the ball bearing are considered known because Yoshikawa et al describes the similar noted functions in col. 4, lines 7-50.

Regarding claim 5: the limitations of wherein the rigidity of the nonlinear spring is increased by increasing the viscosity of a grease used in the ball bearing are considered known because Yoshikawa et al describes the similar noted functions in col. 4, lines 52 to col. 5, line 28.

Regarding claim 6: the limitations of an elastic member provided between the main actuator and the base, the primary resonant frequency being-set according to the modulus of elasticity of the elastic member are considered known because Yoshikawa et al describes a similar noted functions in col. 11, lines 8-18.

Regarding claim 7: Yoshikawa et al teaches that wherein the primary resonant frequency is set to 150 Hz or higher (in col. 5, lines 29-46 of Yoshikawa et al).

Response to Arguments

Applicant's arguments filed 4/26/04 have been fully considered but they are not persuasive because the arguments are directed to the newly amended claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mei (6331923) and Koganezawa et al (6538854) are cited for microactuator that is located at the front end of the main actuator arm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (571) 272-7566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kw

14 Jun 05


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